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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/831,555

Filing Date: August 14, 2001

Appellant(s): KUMAR, BALBIR

Stanley C. Spooner
For Appellant

SUPPLEMENTAL EXAMINER'S ANSWER

This is in response to the appeal brief filed November 12, 2004 and the corrected brief filed 9/27/2007.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Claimed Subject Matter*

The summary of claimed subject matter contained in the brief is correct.

(6) *Grounds of Rejection to be Reviewed on Appeal*

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) *Claims Appendix*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) *Evidence Relied Upon*

GB 2,253,947 A BRIGGINSHAW 9-1992

4,740,791 DARBOWITCH et al. 4-1988

(9) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-6 stand rejected under 35 U.S.C. 102(b) as being anticipated by Brigginsaw. This rejection is set forth in a prior Office Action, mailed on 12-30-2003.

Specifically, regarding Claims 1-6, Brigginsaw show a device for controlling the direction of a radiation beam comprising a transmission means 1 for transmitting the radiation beam 21 from a radiation source 23, and a steering means 9N,S,11N,S for steering the radiation beam, wherein the transmission means comprises a body 1 of ferrite (magnetic) material having a central axis which forms an aperture through which the radiation beam passes, the central axis being parallel to and coincident with the direction of the radiation beam prior to incidence on the transmission means, and wherein the steering means causes the radiation beam to emerge from the transmission means spatially offset (angle theta) relative to the central axis in free space in a known direction, all arranged as claimed.

Further regarding Claims 4-6, the gradient of magnetization F is shown as claimed.

Claims 13-23,25 and 27 stand rejected under 35 U.S.C. 103 as being unpatentable over Brigginsaw in view of Darbowitch et al. This rejection is set forth in a prior Office Action, mailed on 12-30-2003.

Specifically, regarding Claims 13-19,22 and 23, Darbowitch et al show a conical reflector 3 mounting at the apex, the phased array 1. It would have been obvious to the skilled artisan to employ the reflector of Darbowitch et al in the array of Brigginsaw for the purpose of providing a scanned microwave beam in the azimuth plane in a 360 degree rotation, in any microwave band desired.

Regarding Claims 20,21,25 and 27, modulation and demodulation means are obvious devices in a transceiver for producing and demodulating the information contained in the signal.

(10) Response to Argument

Several issues have been raised in the Brief and they will be addressed in the order that they appear.

Appellant's Summary of the Invention appears on pages 2-5 of the Brief.

Of note is the incomplete final sentence in the first full paragraph on page 3 of the Brief. Such an omission is not considered critical because it is recognized what the Brigginshaw reference does not show from the discussion on page 6, first two paragraphs and on page 10 of the Brief.

At the outset, there are two issues raised in the Summary of the Invention. The first issue is in the last paragraph on page 3 of the Brief and sets forth a ferrite body 14 in combination with a phase correcting dielectric layer 20, and states that a beam incident on the body will exit in a direction parallel to the original central axis of the body, but spatially displaced from the central axis. However, it must be specifically noted that the body itself does not cause the "spatial" displacement alone. It is the phase correcting lens/layer 20, located beyond the exit plane of the body that acts on the beam (see Appellant's Figure 1 illustrating the beam 12 at two locations, before entry into the body 14 and after exiting the dielectric 20).

The second issue is Appellant's statement of how to interpret the claim language and is set forth in the second paragraph on page 4 of the Brief. Appellant

acknowledges that Claim 1 is drafted in "means plus function" format (insufficient structure recited in the claim to accomplish the claimed function, i.e., the "steering means"). As a result, Appellant believes that in order to properly construe the claim, the Examiner must refer to the corresponding structure disclosed in the specification and equivalents thereto. However, this matter is an issue of breadth of the claim language. There is no need to import definitions from the specification because Appellant's use of the term "spatial" reads on the prior art as set forth in the rejection and as elaborated on below.

Appellant's arguments begin on page 6 of the Brief with a discussion of the references, discussion of the rejections and the errors in the final rejection, and ends on page 13.

A correct characterization of the Brigginsshaw reference is set forth in the first paragraph of page 6 of the Brief.

Regarding the argument in the first two paragraphs on page 6, an angular, offset or steered beam from the central axis of the device in Brigginsshaw meets the language of Claim 1. Appellant states, "not only is the beam somewhat offset from the central axis, it is also non-parallel to the central axis when it leaves, having been 'bent' into direction (theta)." Such a characterization meets the recitation in Claim 1 because nowhere does the language therein state that the beam must be parallel to the central axis. The claim language merely states that the steering means causes the beam to emerge from the transmission means spatially offset relative to the central axis in free space in a known direction. Angularly offset or steered, is also spatially offset from the

central axis because the beam is not parallel. Lines 8-9 of Claim 1 only require the beam to have a direction parallel and coincident with the central axis *prior to incidence* on the transmission means (emphasis added). The claim says nothing about the beam being parallel with the axis when *exiting* the transmission means (emphasis added). In Brigginsaw, since the beam is steered away from the axis, i.e., non-parallel, the beam is spatially offset from the central axis. A separation of the beam from the central axis (i.e., non-parallel) in terms of an angular or steered beam is considered "spatially offset" as claimed.

On page 7 of the Brief, second paragraph, a correct characterization of the Darbowitch patent is set forth.

Regarding Appellant's remarks in the third paragraph of page 7 of the Brief, the Darbowitch patent is used in the obviousness rejection for showing a reflector system for providing the type of beam scanning disclosed, and for a system of transmitting and receiving such a beam in the microwave bands, where the system includes the typical components of modulation means and demodulation means. Appellant argues that there appears to be no teaching of the steering means of the invention in Darbowitch, "which causes radiation to emerge from the transmission means both spatially offset and parallel to the central axis of the transmission means" (Appellant's emphasis). However, this characterization is not what is claimed in independent Claim 1. The claim does not require the beam to be parallel to the central axis of the transmission means when emerging therefrom. Claim 1 merely states that the beam has to be parallel to the axis prior to incidence on the transmission means, as set forth in lines 8-9 thereof.

In Appellant's argument section of the Brief titled "2. The Errors in the Final Rejection" on page 8, it is noted that the final rejection in the prosecution of this case included different references; but a third and non-final Office action was taken, to which this appeal applies, employing the Brigginsaw reference to emphasize that the claim language reads on the prior art where the beam is steered and thus offset in space when exiting the transmission means. In this argument, Appellant summarizes three issues, (a), (b) and (c) on page 8 and expands on these issues on pages 8-13.

Regarding issue "(a)" on pages 8-10 of the Brief, Appellant states that no reference teaches a steering means causing a spatial offset relative to the central axis with the beam parallel to the central axis. In Appellant's invention, the transmission means is the ferrite/dielectric block, for example 14 in Figure 1, and the steering means is the phase correcting dielectric 20 connected to the exit face 22 of the body and coupling the beam to free space. Claim 1 requires the central axis to be parallel to and coincident with the direction of the radiation beam prior to incidence on the transmission means (lines 8-9 of Claim 1). Figure 1 illustrates the beam 12 "prior to incidence on the transmission means" and shown below the entry face 18 of the body 14. The claim is silent as to whether the beam is parallel to the axis after exiting the exit face 22 of the body/transmission means 14 for further action by the steering means/phase correcting dielectric 20. The claim only requires that the beam emerging from the transmission means 14 be steered, by the steering means so as to be "spatially offset relative to the central axis in free space in a known direction." A spatial offset is defined by the steered beam, in an angular offset, as in the prior art to Brigginsaw. The term

"spatially offset" merely means that the beam is offset in space, which is clearly shown by Brigginsaw. The first paragraph on page 9 of the Brief reiterates the second issue raised in the Summary of the Invention, as addressed above, i.e., how to properly construe the claim, means plus function language. There is a question as to what structure performs what function and Claim 1 is so broad it does not make it clear that a phase correcting dielectric 20 is even required. In Appellant's specification, on pages 3-4, the steering means comprises various structures including magnetic means with solenoid/coils. This is why Brigginsaw was used in anticipating the respective claims and the steering means is identified in the Office action rejection as the coils 9N,9S,11N and 11S because they perform the steering of the beam, albeit angular, there is still a beam defined as emerging from the transmission means spatially offset relative to the central axis. Claim 1 appears to attribute the function of the steering means as the phase correcting dielectric 20, which appears consistent with the description in the paragraph bridging pages 11 and 12 of Appellant's specification. Although in that paragraph, it is admitted that the phase correcting dielectric is not essential with the reflector 64. It is clear from this portion of Appellant's specification that the phase correcting dielectric lens 20 is responsible for the beam emerging from the dielectric 20 in a parallel relationship to the central axis. But, such a condition and characteristic is not what is claimed in Claim 1. The claim only characterizes the beam when emerging from the transmission means. If Appellant is to collectively call the body 14 and the phase correcting dielectric/lens 20 the "transmission means" then the steering means must be some other structure, like the coils in Brigginsaw. Claim 1 does not set forth

specifics of the present invention such as the recitation of the phase correcting dielectric 20, how it relates to the body 14 relative to the exit face 22 and its coupling surface to free space. Thus, it is seen that Claim 1 simply claims the prior art to Brigginsaw.

Appellant remarks in the last sentence in the first paragraph on page 9 of the Brief, that a proper interpretation of Claim 1 requires the phase correcting dielectric to cause the beam to be both offset and parallel to the central axis. However, such specific characteristics are not recited in Claim 1. Claim 1 does state that the beam is parallel and coincident with the central axis "prior to incidence on the transmission means" and the steering means causes the beam to emerge from the transmission means spatially offset relative to the central axis in free space in a known direction. Thus, in the Brigginsaw figure, the central axis (the reference axis to the angle theta) is parallel to and coincident with the direction of the radiation beam 21 prior to incidence on the transmission means 1 at face 7, and the steering means 9N,S,11N,S causes the beam emerging from the transmission means 1 at face 13 to be spatially offset at the angle theta relative to the central axis (the reference axis to the angle theta) in free space in a known direction (theta). No other structure is implied, recited or positively claimed in Claim 1 that would overcome a fair reading of the Brigginsaw structure.

In the first full sentence on page 10 of the Brief, Appellant asks a "threshold question" as to "whether Brigginsaw contains a teaching of a phase correcting dielectric or equivalent thereto which changes the direction of the beam to be 'parallel with the central axis' (while remaining offset as recited)." However, no phase correcting dielectric or equivalent is claimed which changes the direction of the beam to be parallel

with the central axis. The beam is recited in Claim 1 as parallel with the axis "prior to incidence on the transmission means" and that is what is shown as beam 21 in Brigginsaw. Therefore the threshold question is moot. Regarding the argument that Darbowitch does not teach the creation of the beam as set forth, the reference was merely cited as teaching a system in which a steered beam antenna may be employed. The secondary reference does not have to contain a beam pattern and structure as set forth in Brigginsaw to be obvious and combinable.

Regarding Appellant's argument "(b)" on page 10 of the Brief, the offset "inclined" beam of Brigginsaw is spatially offset as claimed. The beam 21 in Brigginsaw is only parallel to the central axis before it enters the transmission means 1, as recited in Claim 1. On page 11, second paragraph, Appellant refers to a "central input axis" and relates the beam to it. However, there is only one central axis 24, for example in Figures 1 and 4 and 78 as in Figures 5 and 11-13. The axis never is displaced or changed with respect to an input or output. In the final issue "(c)" on pages 11-13 of the Brief, Appellant argues that the is no motivation provided for combining the references and a *prima facie* case of obviousness has not been established. However, there is an incentive to combine the references. Darbowitch shows a system structure that includes a phased array antenna. Brigginsaw discloses a phased antenna that steers the beam. These references provide evidence of obviousness and resolve the level of ordinary skill in the antenna art because beam steering is the common thread, and a beam steered antenna is used with a reflector system/arrangement. The obviousness rejection does provide a reason and motivation for combining the phased

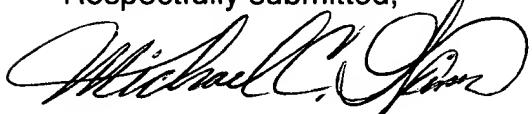
reflector system of Darbowitch with the phased antenna of Brigginshaw by simply stating the purpose of providing a 360 degree rotation of the beam in the azimuth plane.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

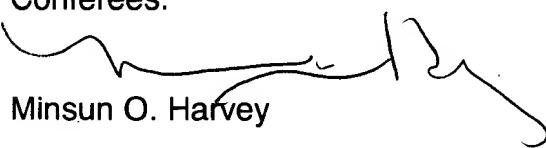


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